King County METRO

# KING COUNTY
# WATERBORNE TRANSIT POLICY STUDY

## Task 4: Sample Routes

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IBI GROUP

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# TABLE OF CONTENTS

# 1. INTRODUCTION

The purpose of this task is to identify sample routes in four example market areas for further analysis under Task 5 of this study. The advantages, disadvantages, feasibility, and concerns regarding waterborne transit are highly route specific. Sample routes are employed in this policy study to illustrate the range of potential opportunities and issues associated with waterborne transit. This approach enables the evaluation of potential markets within King County and the exploration of operating strategies, facility needs, ridership potential, environmental issues, and possible funding approaches. The selection of these particular sample routes is not intended to exclude other routes from future consideration or to suggest that these particular routes should or should not ultimately be implemented.

Also included in this technical memorandum are initial analysis criteria to be used in the evaluation of the sample routes in Task 5.

# 2. MARKET AREAS

Four example market areas were chosen to reflect the potential range of different passenger-only ferry operating environments in King County: Elliott Bay, Lake Union, Lake Washington, and Vashon Island. These are briefly described below.

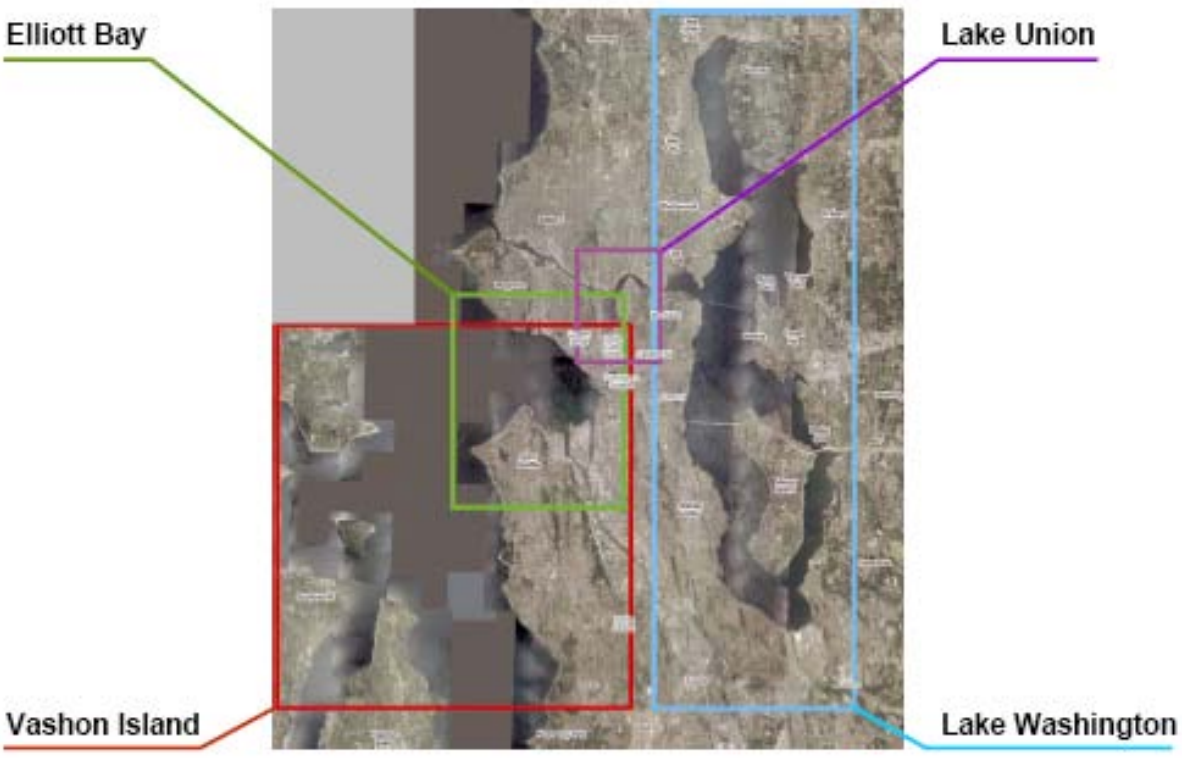


*Image produced for King County by the United States Geological Survey. 2003 High Resolution Orthoimage*

## 2.1 Elliott Bay

Elliott Bay is an inlet of the Puget Sound, bordered by Seattle's downtown to the east, with centers of maritime industry in the south and north. The bay is about 2 miles across and is deep enough for ocean-going vessels throughout most of its area. Elliott Bay is sheltered to the west by the peninsula of West Seattle.

Key characteristics include:

- Tidal (16 foot tidal variation)
- Urban environment (bordered by centers of employment, industry, and residential neighborhoods)
- No vessel speed limit (however, commercial vessel movements subject to direction from the Coast Guard Vessel Traffic System (VTS))

## 2.2 Lake Union

Lake Union is located just north of Seattle's central business district. The 580 acre lake is surrounded by the Seattle neighborhoods of Fremont, Wallingford, Eastlake, South Lake Union, and Queen Anne – with a direct connection to the University District and Montlake on Portage Bay. Lake Union is open to Puget Sound through the Lake Washington Ship Canal, the Hiram M. Chittenden Locks, and Salmon Bay.

Key characteristics include:

- Minimal variation in water level (two feet annually)
- Constrained speeds (seven knot speed limit)
- Significant vessel traffic from commercial vessels, pleasure boats, seaplanes, kayaks and rowing shells
- Urban environment (bordered by centers of employment, residential neighborhoods, and city parks)

## 2.3 Lake Washington

Lake Washington extends from Renton in the south to Kenmore and Lake Forest Park in the north, separating the city of Seattle on the west from communities such as Bellevue and Kirkland on the east. At 21,500 acres, Lake Washington is the largest of the three major lakes in King County, and the second largest natural lake in the State of Washington. The SR-520 and I-90 bridges provide access across the lake from Eastside communities to Seattle destinations, including Downtown Seattle and the University of Washington.

Key characteristics include:

- Minimal variation in water level (two feet annually)
- No vessel speed limit except at bridge approaches and west of Webster Point on Union Bay (seven knot limit in speed-restricted areas)

- Near shore development primarily suburban or low density urban. Employment centers adjacent to the shore in Kirkland, Bellevue, Renton, the University District, and Kenmore

## 2.4 Vashon Island

Vashon Island, the westernmost part of King County, is a rural island in Central Puget Sound. Many island residents commute daily to Seattle and other destinations on the east side of the Puget Sound. Washington State Ferries operates a passenger-only ferry to Downtown Seattle and a passenger-vehicle ferry to Fauntleroy (West Seattle) from a terminal located at the northern end of Vashon Island. WSF passenger-vehicle ferry service is also provided to Southworth (on the Kitsap Peninsula to the west) from this Vashon terminal. Approximately half of the riders on the passenger-only ferry to Downtown Seattle transfer from the Southworth passenger-vehicle ferry at Vashon.

Key characteristics include:

- Tidal (16 foot tidal variation)
- Rural island to urban activity center
- No vessel speed limit (commercial vessel movements subject to direction from VTS)

# 3. SAMPLE ROUTES

The consultant team developed the following sample routes in collaboration with King County Metro staff and technical stakeholders. The technical stakeholders – which include representatives from the Port of Seattle, the City of Bellevue, the City of Seattle, the City of Des Moines, private operators, and ferry advocates – are a subset of the larger stakeholder group that has given input to the study at stakeholder meetings in March and a stakeholder open house in May. A workshop was held on April 7th, 2005 with the technical stakeholders to identify the sample routes, and begin to define potential service parameters for those routes. A copy of the materials used for that discussion can be found in **Appendix A**.

The services tested in the four market areas of Elliott Bay, Lake Union, Lake Washington, and Vashon Island fall into two general categories: connector services and commuter services.

Connector services provide all day service, with exact frequency and span dependent on density, geography, and demand. A substantial portion of trips on connector services are non-commute, including work errands, recreation and tourism, and personal errands. The sample routes for Elliott Bay and Lake Union can be considered connector services.

The second category, commuter services, connect communities to a regional center and primarily serve morning and afternoon commute trips. Both the Lake Washington and Vashon Island sample routes are representative of commuter services.

## 3.1 Connector Service Example: Elliott Bay

*The Elliott Bay sample routes are representative of ferry services that provide an all-day mobility option connecting communities that are relatively close by water but distant by land, where there is strong commute trip directionality supplemented by off-peak demand.*

Two sample routes examine connections from West Seattle to waterfront destinations across Elliott Bay: West Seattle to Downtown Seattle, and West Seattle to North Bay.


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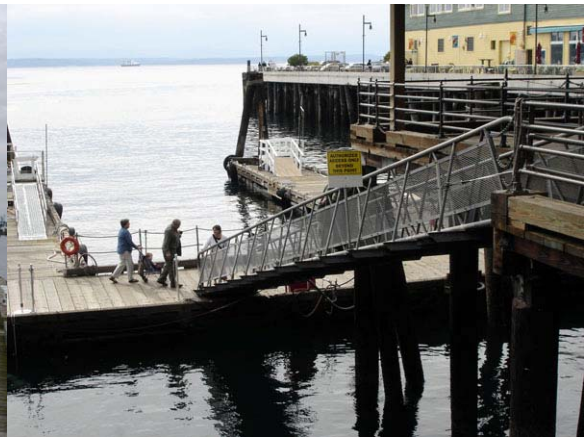
### 3.1.1 WEST SEATTLE – DOWNTOWN SEATTLE

Service would continue to be provided between West Seattle and Downtown Seattle. However, certain key changes designed to improve the cost effectiveness of the service compared to the current Elliott Bay Water Taxi would be implemented. At the core, provision of the service would be planned and funded on an ongoing basis, enabling long term investments in more efficient, route suited vessel and terminals. Additionally, given the separation of West Seattle's eastern shore from the area's main centers of population, the terminal would be moved to a location where parking could be provided (south to the Port of Seattle owned Pier 2). Service would continue to be offered all day, seven days a week with extended hours Friday and Saturday evening. For purposes of comparison with the other sample routes, the analysis covers year round operation. However, year round operation is not recommended, given the established seasonality of demand.

### 3.1.2 NORTH BAY – WEST SEATTLE

Discussions are currently underway for potential redevelopment of the largely Port of Seattle owned land north of Terminal 91 – between the neighborhoods of Queen Anne and Magnolia – known as North Bay. Following any potential redevelopment of North Bay, King County could potentially partner with the Port of Seattle and other major employers in the area, such as Amgen, to provide direct West Seattle to North Bay passenger-only ferry service. This all day service would be a complementary service to the current Elliott Bay Water Taxi, enabling West Seattle residents to reach destinations on the eastern and northern shores of Elliott Bay from one West Seattle terminal.

## 3.2 Connector Service Example: Lake Union

*The Lake Union sample routes are representative of ferry services that provide all-day mobility options – for recreation, business, and personal use – in a dense urban environment with multiple waterfront destinations and good land based connections.*

Two sample routes have been identified for Lake Union: a point-to-point service between the University of Washington and South Lake Union, and a circulator service that would potentially serve multiple destinations around Lake Union.

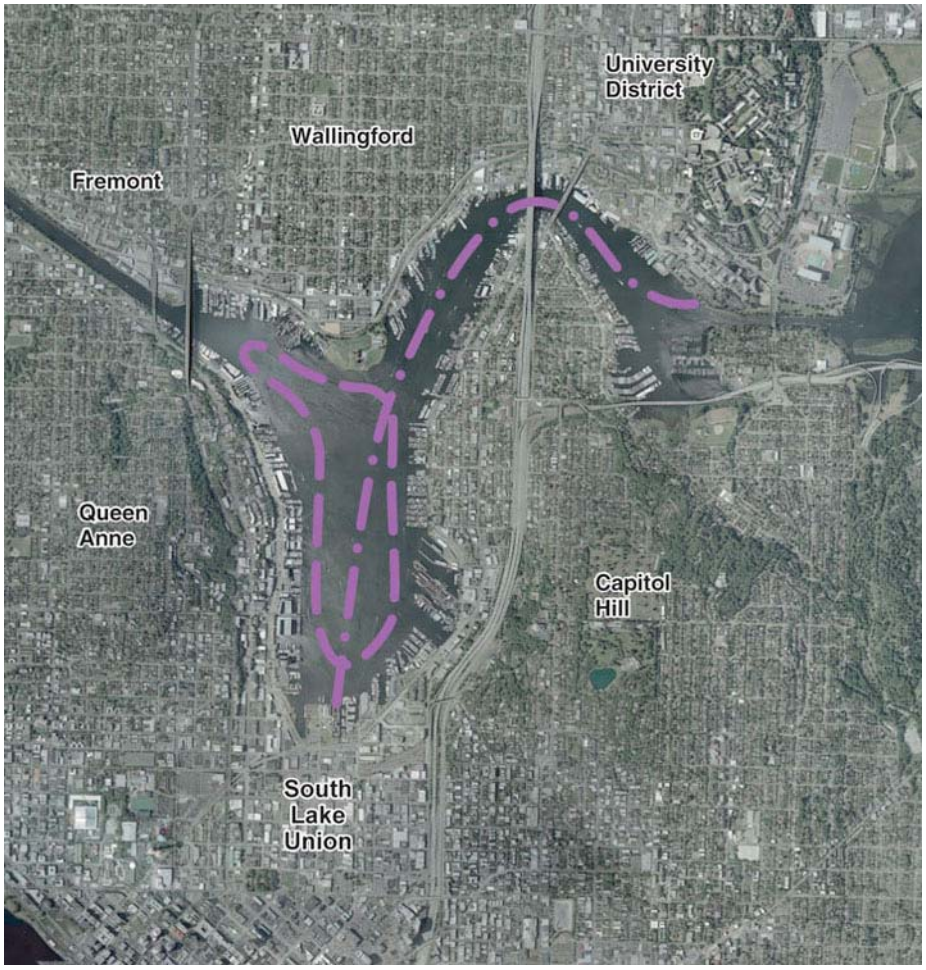



*Image produced for King County by the United States Geological Survey. 2003 High Resolution Orthoimage*

### 3.2.1 SOUTH LAKE UNION – UNIVERSITY OF WASHINGTON

The sample route would connect the growing biotech center in South Lake Union with the University of Washington Medical Center. The service would run all day, potentially transporting researchers, students, staff, patients and family members. While connecting the two biomedical centers would be the primary focus, the service would also provide a scenic connection between the University District and Downtown Seattle via South Lake Union for commute and recreation trips.

### 3.2.2 LAKE UNION CIRCULATOR

The Lake Union Circulator sample route would connect multiple destinations along the Lake Union waterfront. Arrangements could be made with various private and public dock owners on Lake Union to provide service based on dock availability. Service would operate all day, with extended hours Friday and Saturday evening. The service would be scheduled, but could potentially bypass certain docks if there were no waiting passengers or passengers wanting to disembark.

## 3.3 Commuter Service Example: Lake Washington

*The Lake Washington sample routes are representative of ferry services that are primarily focused on serving peak-period commute trips between surrounding lower density communities and a regional urban center, where viable land alternatives exist.*

Two sample routes were identified for Lake Washington: Kirkland to Seattle via the University of Washington and North Renton to Seattle via Leschi.

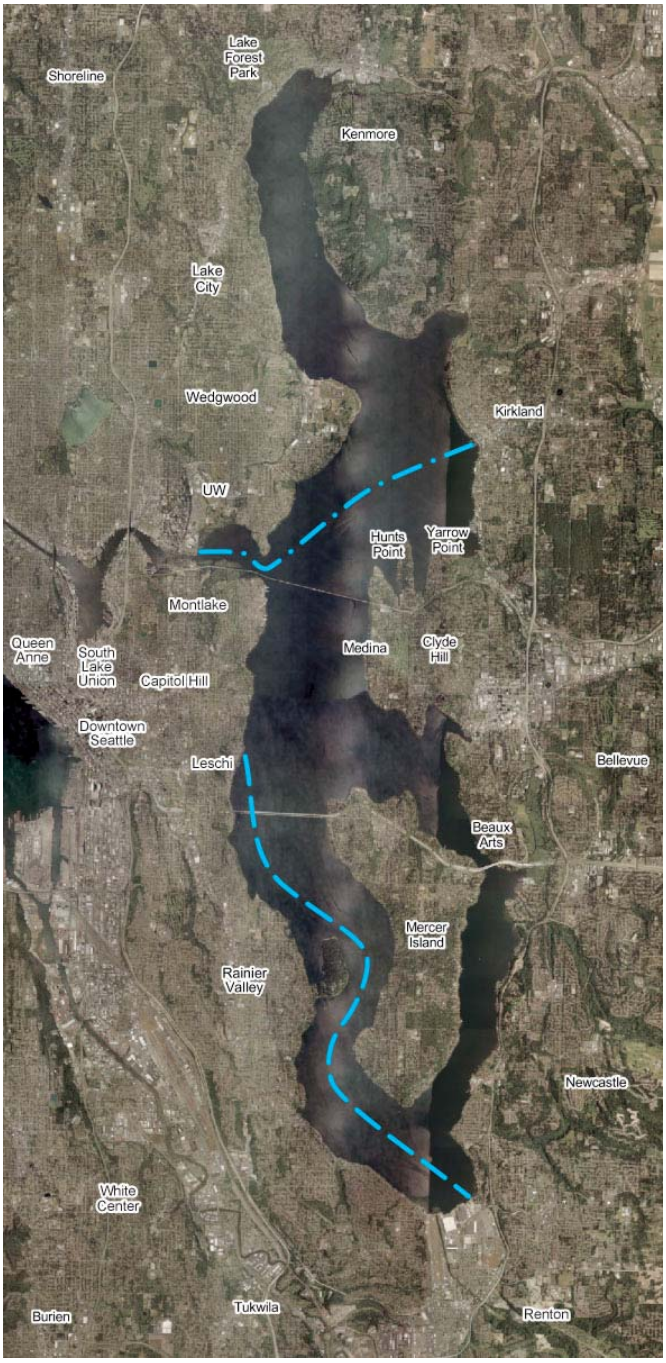



*Image produced for King County by the United States Geological Survey. 2003 High Resolution Orthoimage*

### 3.3.1 KIRKLAND – UNIVERSITY OF WASHINGTON

The sample route would provide weekday peak-period service between downtown Kirkland and the University of Washington. The ferry would dock on the eastern side of campus, providing access to the University of Washington and the Sound Transit light rail line station adjacent to Husky Stadium (anticipated completion by 2015).

### 3.3.2 RENTON – LESCHI

The North Renton – Leschi sample route would operated during the weekday peak periods. The primarily market would be commuters traveling between the Renton area and Downtown Seattle. The Renton terminal would include a park and sail lot. The primary feeder modes for the ferry service would be private auto and transit, though growing redevelopment in the North Renton area could increase the number of walk and bicycle trips. From the Leschi terminal, ferry riders would be able to transfer to a bus to Downtown Seattle.

## 3.4 Commuter Service Example: Vashon Island

*The Vashon Island sample routes are representative of ferry services that are primarily focused on connecting surrounding communities with a regional urban center for peak-period commute trips where no direct land-based connection exists.*

The two sample routes are two options identified in the Washington State Ferries *Ten-Year Passenger Strategy for Washington's Multimodal Ferry Transportation System* for serving the Vashon Island market: a direct Vashon Island to Downtown Seattle route and a triangle route between Seattle, Vashon Island, and Southworth.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### 3.4.1 TRIANGLE ROUTE

Washington State Ferries (WSF) recommends that the existing Vashon Island waterborne transit service to Downtown Seattle be replaced with a WSF operated South Sound passenger-only ferry (POF) triangle route. This new route would serve WSF's existing passenger-only markets originating from Vashon and South Kitsap County. According to WSF, two sailings would be offered in each four-hour peak period.

### 3.4.2 DIRECT VASHON – SEATTLE

An alternative presented by WSF to the triangle route would be a direct Vashon to Downtown Seattle passenger-only service. This route would differ from the current Vashon passenger-only ferry; instead of serving both Vashon and Southworth riders, the Southworth market would be served separately by a direct Southworth to Downtown Seattle passenger-only ferry. WSF has projected that the new service would run for four hours in the AM peak period and four hours in the PM peak period, with two sailings per peak period.

# 4. INITIAL ANALYSIS CONSIDERATIONS

The technical stakeholder discussions highlighted several initial analysis considerations, as summarized below.

**Ridership**

Ridership potential should be a primary criteria. Ridership is highly dependent on a ferry route's ability to compete with land based modes in terms of speed, frequency, convenience, reliability (including long term service availability) and price. There was a general feeling expressed by the private operators in the group that ridership was unlikely to be sufficient for profitable operation in any of the market areas in King County.

**Terminals**

Terminal location is of fundamental importance. New terminals are difficult to site, making the most relevant question whether it is possible to get access to existing terminal facilities. Desirable terminal attributes include close proximity to major destinations, and good multimodal transportation connections.

**Community Issues**

Consideration of a potential service should be sensitive to wake impacts on shoreline residents and impacts to other water users, such as rowers.

**Future Changes**

While a certain route may not be feasible at the moment, a look at anticipated land use and transportation changes may suggest whether the route may become feasible in the future.

# APPENDIX A

## APRIL 7TH, 2005 TECHNICAL STAKEHOLDER WORKSHOP MATERIALS

King County METRO

Metro Transit
*Waterborne Transit Policy Study*

# Sample Route Workshop

## Workshop Agenda

1. Introductions and workshop overview (11:00 - 11:15)
2. Route discussions
   - Community connector routes (11:15 - 1:00)
     — Working lunch at 1:00 —
   - Commuter routes (1:00 - 2:45)
3. Wrap-up (2:45 - 3:00)

## Workshop Objective

*To identify two sample route scenarios in each of four potential waterborne transportation market areas in order to help King County identify key policy issues and options.*

## Workshop Approach

In each market, two sample routes have been identified. Your assistance is needed to:

- Confirm that the appropriate routes have been identified
- Identify the key factors required to make each route a success

Route scenarios identified today will be analyzed by the consultant team in terms of:

1. Overall operational and financial feasibility
2. Potential impacts and issues
3. Comparison with existing transit services

# Scenario Development Considerations

## Key Success Factors

1. How can the service reasonably be implemented?
2. What should the service look like to meet market needs?
3. How would the service support or impact local communities?
4. What would it take to maintain ongoing operation of the service?
5. What strategy(s) would minimize the cost of service to the County and its residents?

## Primary Components

1. Route
2. Service span and frequency
3. Vessel size, attributes and operational characteristics
4. Terminal features (terminal, bus connections, parking)
5. Partnership approach (public-private, public-public)

# Community Connector Route Scenarios

## Route Objective

To provide mobility options between communities and activity centers, and to enhance economic development in local areas.

## Market Areas

- Lake Union
- Elliott Bay

## Route Characteristics

**Travel time**: Short duration (under 30 minutes)

**Service type**: All day, scheduled or demand responsive, seasonal variation

**Connectivity**: activity center, pedestrian and transit connections

**Vessel size**: Determined by market conditions (<50 or <150 passenger class)

**Terminal facilities**: Simple stops with basic amenities

**Operational approach**: Privately operated with public endorsement or financial support

## Sample Route Options - Lake Union

*Question: What would it take to make either or both of these options a success assuming private operation with minimal support from King County?*

1. Direct point-to-point between two stops (e.g. UW to South Lake Union)
2. Circulator service between multiple stops

## Sample Route Options - Elliott Bay

*Question: What is the most efficient and cost-effective way to continue to deliver water taxi service across Elliott Bay, and how should any partnerships be structured?*

1. Ongoing operation of the existing Elliott Bay Water Taxi service with improved efficiency
2. An alternative approach that includes both public-public and public-private participation with potentially multiple stops

# Commuter Route Scenarios

## Route Objective

To provide public transportation connectivity between the Seattle urban center and surrounding communities.

## Market Areas

- Lake Washington
- Vashon Island

## Route Characteristics

**Travel time**: Short to long duration (plus or minus 30 minutes)

**Service type**: Peak period, scheduled, high speed

**Connectivity**: Transit and potentially parking connections

**Vessel size**: Determined by demand (150 passenger class or greater)

**Terminal facilities**: Integrated transit and potentially parking facilities, similar to a transit center

**Operational approach**: Public or private operation

## Sample Route Options - Lake Washington

*Question: What are the features required to effectively serve urbanized and non-urbanized communities?*

1. Urbanized origin and destination served by transit - Kirkland to the University of Washington
2. Suburban origin served by transit and parking to urban destination - North Renton to Seattle (Madison Park)

## Sample Route Options - Vashon Island

*Question: How might King County participate under two possible options for continued passenger-only service to Vashon Island?*

1. Participation in a triangle route operated by WSF between Vashon Island, Southworth and downtown Seattle
2. Operation of a direct route from Vashon Island to downtown Seattle